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ABSTRACT

Specifically designed to avoid methodological problems limiting earlier research, this study attempted to identify specific behavioral differences between elementary school students with either high or low sociometric status. Subjects, who had been selected on the basis of same-sex sociometric status nominations of 144 classmates, were 30 females and 24 males in seven fourth- and fifth-grade classrooms. The 54 subjects were observed on a quasi-random basis by 10 experimentally naive undergraduate students using a 31-category comprehensive state/event observation code. Each subject was observed in both academic and nonacademic settings for a minimum of 12 10-minute sessions. Results indicated an interaction between sociometric status and setting, but students of high and low sociometric status could be discriminated on the basis of behavior in both settings. It was tentatively concluded that the utilization of the overall rate of peer social interaction as an index of social skill or appropriate social behavior is not supported by the available data. Additionally, results suggested that certain behaviors frequently targeted as social skills are appropriate behavioral goals only for certain situations and that, to be understood, behavioral differences should be considered within the context of the behavioral setting in which they occur. (Implications for training in social skills are briefly considered.) (RH)

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Elementary Students' Sociometric Status and Behavior: A Discriminant Analysis

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Running head: SOCIOMETRIC STATUS AND BEHAVIOR

Abstract

The identification and training of children's social skills has been the focus of a number of recent research efforts. Researchers have successfully modified a variety of behaviors identified as social skills on the basis of face validity. However, there is a lack of empirical support for the social validity of the targeted behaviors.

The present research was designed to identify the behavioral correlates of peer sociometric status (SMS). Fifty-four high and low SMS students were selected from seven fifth- and fourth-grade classrooms on the basis of peer ratings. Students were observed in their regular school environment, and the resulting data analyzed with a multivariate technique.

The results indicated an interaction between SMS and setting (academic or nonacademic), but high and low SMS students could be discriminated on the basis of behavior in both settings. Several research and treatment implications are presented.

Elementary Students' Sociometric Status and Behavior: A Discriminant Analysis

Problem. A proliferation of research in the training of children's social skills has occurred during the past 10 years. A comprehensive review by Michelson and Wood (1980) reported 50 articles on children's social skills published between 1970 and 1980, compared with only nine articles researching children's social skills published between 1942 and 1970. Researchers have successfully trained children in smiling, making eye contact, increasing voice volume, and a variety of other behaviors identified as social skills on the basis of face validity. Nonetheless, there is little evidence that any of the behaviors trained as social skills are important behavioral components of social skill or social competence. Bellack (1979) and others have pointed out that behaviors typically assumed to be social skills may in fact have no clinical or social utility. In addition, research with adults designed to socially validate behaviors as social skills has typically reported negative results.

The social validation of children's social skills has only recently been addressed by researchers and there is a scarcity of data. The social validation of children's social skills is required before the effective modification of children's social behavior can occur. One method of social validation involves the observation of "contrasting groups" identified as either having or not having a particular problem (Kazdin, 1977).

Peer sociometric status has frequently been used to identify children with social skills deficits, and low peer sociometric status in childhood has been correlated with future social or behavioral problems (e.g., Cowen, Pederson, Babigian, Izzo, & Trost, 1973). The purpose of the present study was to identify specific behavioral differences between high and low sociometric status elementary school students.

Method. The research consisted of an exploratory, field based analysis of the relationship between sociometric status and behavior in the child's ordinary school environment. The research was conducted in a large Eastern Tennessee county. Subjects consisted of 54 students (30 females and 24 males) in 7 fourth- and fifth-grade classrooms. The subject population was predominately white, middle class, and suburban. The subjects were selected on the basis of same-sex peer sociometric status obtained on a total of 144 students in the seven classrooms. The peer sociometric technique employed a 5 point rating scale measuring status in both work and play (Figure 1). Subjects were in the upper and lower quartiles, respectively, on their classroom sociometric test. High and low status students were matched by gender in each classroom.

Insert Figure 1 about here

The 54 subjects were observed on a quasi-random basis by 10 experimentally naive undergraduate students using a comprehensive 31 category state/event observation code (Figure 2). Each subject was observed for a minimum of twelve 10-minute sessions in both academic (e.g., seatwork, small reading groups) and nonacademic (e.g., recess, freetime) settings. Interobserver agreement was assessed on approximately 20% of the observations and the median agreement for behaviors used in the analysis was 80% (percent agreement = [agreements/agreements + disagreements] X 100). The behavioral observations were collected over a 6 to 9 week period and a posttest sociometric was administered after the observations were completed. The median stability coefficient for same-sex peer sociometric status was .81 (Pearson product moment correlation coefficient).

Insert Figure 2 about here

Results. The power of the behavioral categories (independent variables) to explain high and low sociometric status (the dependent variable) was assessed using a Wilks lambda (stepwise variable) selection process (Klecka, 1975). The relationship between sociometric status and behavior was analyzed seperately for academic and nonacademic settings. Twelve behavioral categories were analyzed for academic settings, and thirteen behavioral categories were analyzed for nonacademic settings. The behavioral

categories (Table 1) used in the discriminant analyses were selected on the basis of high reliability and frequency. In

Insert Table 1 about here

academic settings, five variables (Solitary Activity, Other Child Physical Contact, Verbal Negative, Activity Change, and Laugh/Smile) resulted in the highest significant Chi-square (5), 20.31, $p < .001$. In nonacademic settings, six variables (Other Child Physical Contact, Noninteraction, Personal Aggression, Other Child Verbal Negative, Group, and Sports) resulted in the highest significant Chi-square (6), 18.70, $p < .005$.

For academic settings, the results indicated that high sociometric status students laughed and smiled more, and were approached more frequently by peers. Low sociometric status students engaged in nonacademic solitary activities more frequently than did high status students, and switched activities more frequently. Low sociometric status students also made more negative verbal comments to peers.

In nonacademic settings, high sociometric status students were approached more frequently by peers and were more likely to participate in organized sports activities. Low sociometric status students spent more time in unorganized group activities, and had higher rates of noninteraction. Combined, these data indicate that when high status students were interacting with

one or more peers, they did so within the context of organized play or sports. Low status children interacted more often by talking, standing around in groups, and in other activities that did not involve organized gross motor play. Also, low status children were more physically aggressive and received more verbal negative statements from peers.

The relative power of the behavioral categories to predict peer sociometric status can be assessed by examining the standardized canonical discriminant function coefficients (Table 2). The absolute value of the coefficients represents the relative contribution of each individual variable to the discriminant function. The signs (positive or negative) denote the direction in which the associated variable contributes to the linear model which when combined forms the discriminant function. In Table 2, variables with negative signs predict high status group membership. Other Child Physical Contact, scored for positive physical approaches made by peers, was the most powerful single behavioral variable in both settings.

Insert Table 2 about here

Interpretation. The present study was specifically designed to avoid some of the methodological problems limiting earlier research on the behavioral correlates of peer sociometric status.

Therefore, large samples of behavior were obtained across settings using a comprehensive behavioral code, and the data analyzed using multivariate statistics. The relationship between sociometric status and behavior is complex and influenced by situational variables. Also, the behavioral variables were only able to explain approximately 40% of the variance in sociometric status. Despite these limitations, some tentative conclusions are possible. First, the utilization of the overall rate of peer social interaction as an index of social skill or appropriate social behavior is not supported by the available data. Both the present study and previous research have indicated that peer sociometric status and rates of social interaction are not significantly related. It has been proposed (Gottman, 1977) that the socially withdrawn and the low sociometric status child represent two distinct clinical populations. This hypothesis needs further investigation, but it is possible to conclude that the identification of children on the basis of low sociometric status and subsequently training them to increase their rates of peer interaction may not be effective.

Second, the present study would suggest that certain behaviors frequently targeted as social skills (e.g., smiling) are appropriate behavioral goals only for certain situations. Teaching a low social status child to smile more frequently without regard to the behavioral setting may be an exercise in futility.

A third conclusion is that high and low sociometric status students behave differently. However, unless behavioral differences are considered within the context of the behavioral setting, they may not be elucidated.

The results of the present study do suggest some possible behavioral goals for training children's social skills. In both academic and nonacademic settings, low sociometric status children exhibited lower rates of positive physical approaches to peers and received fewer peer physical approaches. In academic settings, the results indicate that low status children should be trained to work more, stay with a single task longer, smile and laugh more frequently, and not make negative statements to peers. In nonacademic settings, low status children should be taught to participate in sports activities, ignore the negative verbal statements of peers, and commit fewer physical aggressions.

It is important to remember that the correlation data obtained can only suggest possibly effective social behaviors. Further research is needed to demonstrate the experimental covariation of the tentatively identified social skills and peer sociometric status. Finally, it is imperative that research in the identification of children's social skills continue. Social behavior is not topographically or conceptually simple and the identification of social skills will require much more research. Determining what behaviors allow a child to be an

effective social agent in a variety of situations and behavioral settings will require many research efforts.

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Table 1

Definitions of Behavioral Variables and Interobserver Agreement

Variable	Definition	% Agreement
Social Interaction with Child (SIC)	Any verbal or nonverbal interaction between the subject and another child	91
Group (GRP)	Social interaction involving two or more students in addition to the subject, scored only in conjunction with SIC.	96
Sports (SPTS)[a]	Scored in conjunction with SIC when the interaction involved a sports activity.	96
Game (GME)[a]	Scored in conjunction with SIC when the interaction involved a board game.	95
Solitary Activity (SOL)	Any nonacademic activity involving interaction with objects performed alone	78

(table continues)

Variable	Definition	% Agreement
Work (W)[b]	Solitary academic activity or environmental maintenance activity (e.g., putting away school materials)	93
Noninteraction (NI)	No interaction with either objects or people.	81
Play Organizer (PlaOR)[a]	Verbal statements assigning roles or specifying rules for nonacademic activities.	70
Verbal Negative (V-)	Intelligible verbal statements judged to be aversive or negative and directed to peers (e.g., insults).	83
Personal Aggression (PAg)	Hitting, striking, or pushing a peer with either the body or an object.	96
Physical Contact (PC)	Deliberate nonaggressive physical contact with a peer and initiated by the subject	69

(table continues)

Variable	Definition	% Agreement
Activity Change (AC)[b]	Change from one particular setting and set of responses to another setting and set of responses (e.g., change from watching television to playing ball).	88
Other Child Verbal Negative (OCV-)	Scored for negative or aversive verbal remarks made by peers to the subject.	82
Other Child Physical Contact	Deliberate nonaggressive physical contact initiated by peers.	79

[a]Variable analyzed in nonacademic settings only.

[b]Variable analyzed in academic settings only.

Table 2

Standardized Canonical Discriminant Function Coefficients for Academic and Nonacademic Settings

	Academic Settings
Variable	Coefficient
Other Child Physical Contact	-0.69505
Verbal Negative	0.53761
Solitary Activity	0.53751
Activity Change	0.46351
Laugh/Smile	-0.38686

	Nonacademic Settings
Variable	Coefficient
Other Child Physical Contact	-0.78424
Noninteraction	0.67462
Group	0.63260
Sports	-0.57317
Personal Aggression	0.39602
Other Child Verbal Negative	0.36573

Figure Caption

Figure 1. Work form of the peer-rating sociometric instrument reduced to 66% of the original size.

1. NO: "I don't like to at all."
2. no: "I don't like to."
3. ?: "I don't care if I do or if I don't."
4. yes: "I like to."
5. YES: "I like to a lot."

How much do you like to work with _____?

1 2 3 4 5

NO no ? yes YES

How much do you like to work with _____?

1 2 3 4 5

NO no ? yes YES

How much do you like to work with _____?

1 2 3 4 5

NO no ? yes YES

How much do you like to work with _____?

1 2 3 4 5

NO no ? yes YES

How much do you like to work with _____?

1 2 3 4 5

NO no ? yes YES

How much do you like to work with _____?

1 2 3 4 5

NO no ? yes YES

How much do you like to work with _____?

1 2 3 4 5

NO no ? yes YES